Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte PETER RUDAK and ANDREAS E. SAVAKIS

Appeal No. 1998-3393
Application No. 08/763,268

ON BRIEF

Before RUGGIERO, GROSS and BARRY, Administrative Patent Judges.
RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 1-8, all of the claims pending in the present application.

The claimed invention relates to a method of generating an M-bit gray scale image from an N-bit gray scale image, where 1—M—N. For each pixel in the N-bit image, an image threshold is determined based on neighboring pixel values for generating the most significant bit (MSB) of the M-bit image. Thresholds for

each less significant bit (LSB) of the M-bit images are determined based on the threshold for the most significant bit and the neighboring pixel values. Appellants assert at page 3 of the specification that, by applying the thus determined thresholds to quantize the N-bit image pixels to produce the M-bit image, the number of bits in a gray scale document image is reduced while the contrast of the characters and lines in the document is enhanced.

Claim 1 is illustrative of the invention and reads as follows:

1. A method of generating an M-bit grayscale image from an N-bit grayscale image, where 1<M<N, comprising the steps of:

a) for each pixel in the N-bit image,

i) determining a threshold, based on the values of neighboring pixels, for generating the most significant bit (MSB) of the M-bit image,

ii) determining thresholds, based on the threshold determined in step i) and the values of surrounding pixels, for each successive less significant bit(s)(LSB) of the M-bit image; and

b) applying the thresholds to quantize the pixels in the N-bit image to produce the M-bit image.

The Examiner relies on the following prior art:

Itoh et al. (Itoh)	4,682,869	Jul. 28, 1987

Godshalk et al. (Godshalk)	5,384,646	Jan. 24, 1995

Claims 1-8 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Godshalk in view of Itoh.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Brief and Answer for the respective details.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the Examiner, the arguments in support of the rejection and the evidence of obviousness relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Brief along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the invention set forth in claims 1-8. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so

doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

With respect to independent claim 1, the Examiner, as the basis for the obviousness rejection, proposes to modify the

image data processing disclosure of Godshalk. According to the Examiner (Answer, page 4), Godshalk discloses the claimed invention except for the determination of thresholds for the less significant bits of an image pixel based on the previously determined most significant bit threshold. To address this deficiency, the Examiner turns to Itoh and cites a passage at column 2, lines 27-35 as providing motivation to the skilled artisan to make the combination.

After reviewing the arguments in response, we are in general agreement with Appellants that the Examiner has not established a prima facie case of obviousness. In our view, the excerpt from Itoh cited by the Examiner is nothing more than a summarization of Itoh's technique of adding error compensation data to lower resolution image layers to obtain successively higher resolution images. The Examiner has provided no indication as to how and where the skilled artisan might have found it obvious to apply the teachings of Itoh to modify Godshalk to arrive at the particular threshold determination procedure of the claimed invention. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior

art suggested the desirability of the modification. In re Fritch, 972 F. 2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

We are in further agreement with Appellants that, even assuming arguendo that proper motivation exists for combining Godshalk with Itoh, the proposed combination would not result in the invention as claimed. We find nothing in the disclosure of Itoh which suggests the determination of a less significant bit threshold based on a previous determination of a most significant bit threshold. In making this determination, we are cognizant of the Examiner's reference (Answer, page 5) to the disclosure at column 5, lines 6-25 and column 8, lines 27-38 of Itoh. In our view, this disclosure of Itoh at most describes the estimation of pixel values of a lower resolution image using values from surrounding higher resolution pixels, a feature which falls well short of the specific threshold determination procedure recited in Appellants' claims.

Since all of the claim limitations are not taught or suggested by the applied prior art, it is our opinion that the Examiner has not established a prima facie case of obviousness

with respect to the claims on appeal. Accordingly, we do not sustain the

Examiner's 35 U.S.C. § 103 rejection of independent claim 1, nor of claims 2-8 dependent thereon. Therefore, the Examiner's decision rejecting claims 1-8 is reversed.

REVERSED

JOSEPH F. RUGGIERO Administrative Patent Judge	)	
ANITA PELLMAN GROSS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LANCE LEONARD BARRY Administrative Patent Judge	)	

Appeal No. 1998-3393
Application No. 08/763,326

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